

Integrated Damage-Adaptive Control System (IDACS), Phase I

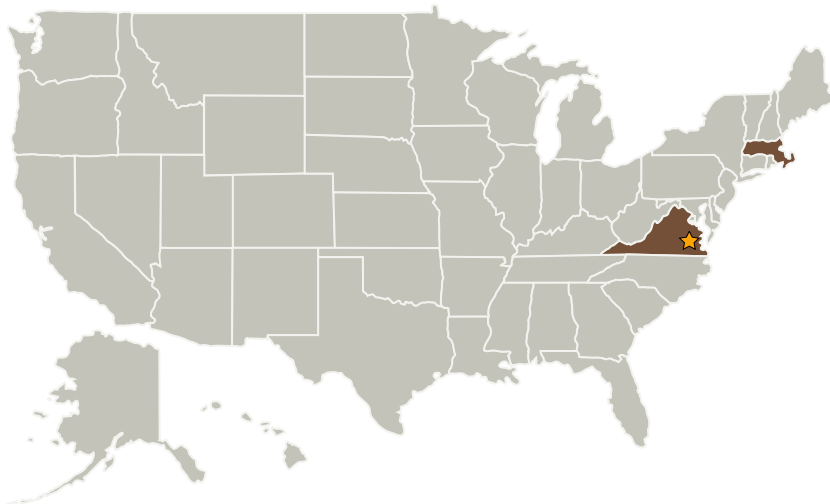
Completed Technology Project (2006 - 2006)



Project Introduction

SSCI, in collaboration with Boeing Phantom Works, proposes to develop and test an efficient Integrated Damage Adaptive Control System (IDACS). The proposed system is based on the development of a coupled structural and aerodynamic model of aircraft dynamics under wing damage, and multiple-model damage estimator whose estimates are used in the reconfigurable control law to stabilize the aircraft and achieve acceptable performance of the closed-loop flight control system. In order to achieve these objectives, we propose to carry out the following tasks in Phase I: (i) Develop an integrated structural and aerodynamic model of wing damage; (ii) Evaluate the feasibility of a multiple-model wing damage estimator; and (iii) Test and evaluate the performance of the IDACS. Boeing Phantom Works (Mr. James M. Urnes, Sr.) will provide technical and commercialization support under the project. The main emphasis of the Phase II work will be on enhancements and integration of the proposed IDACS algorithms, and the development of the corresponding software tool.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Scientific Systems Company, Inc.	Supporting Organization	Industry Small Disadvantaged Business (SDB)	Woburn, Massachusetts

Primary U.S. Work Locations

Massachusetts	Virginia
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - └ TX15.1 Aerosciences
 - └ TX15.1.3 Aeroelasticity